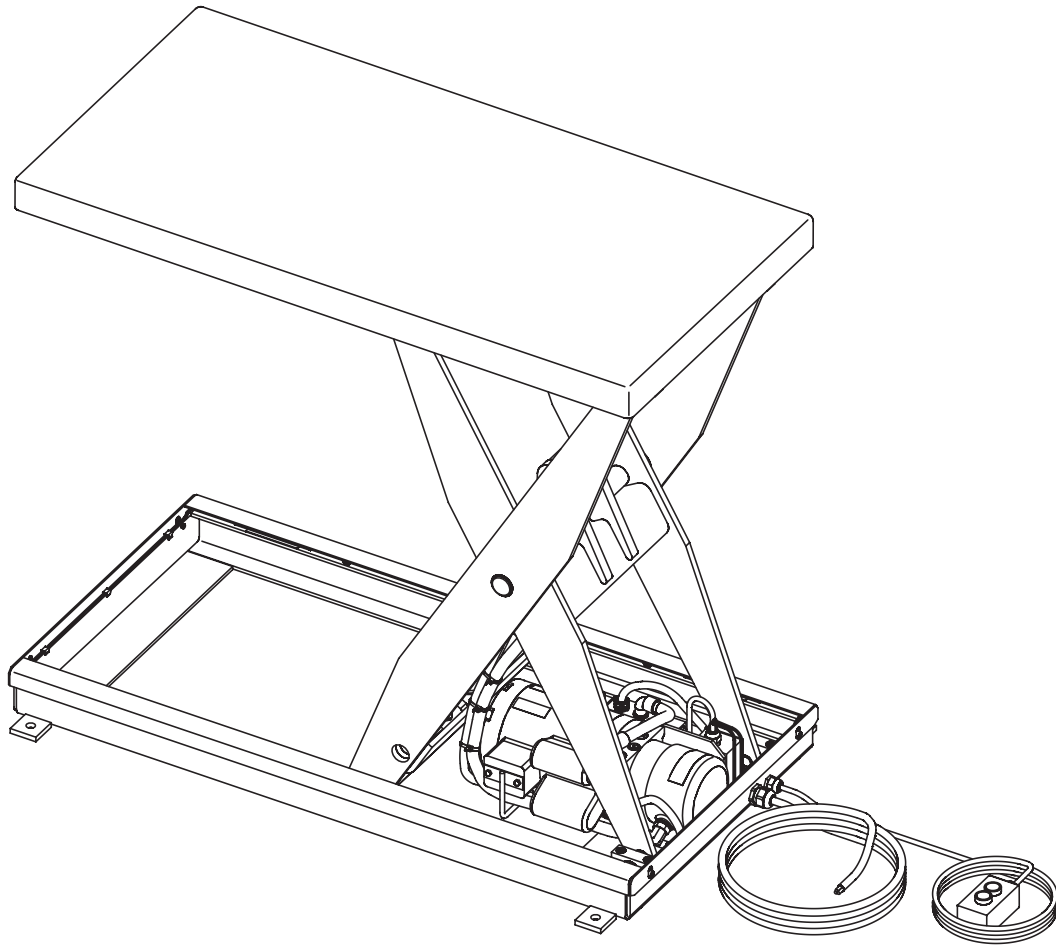


Vision™



Service Manual

Bishamon Industries Corporation
5651 E. Francis St.
Ontario, CA. 91761
(909) 390-0055 (800) 231-3187
PATENT PENDING

Vision Series Service Manual

Copyright © 2000, Bishamon Industries Corporation

All Rights Reserved

Table of Contents

<i>Contents</i>	<i>Page</i>
Getting Started.....	.1
Inspection.....	.1
Safety Definitions.....	.1
General Dangers, Warnings, and Cautions.....	.1
Responsibilities of Owners/Users.....	.4
Specifications.....	.4
Specification Drawing.....	.5
Recommended Floor Area.....	.6
Functional Description.....	.7
Maintenance Catch Operating Instructions.....	.7
Installation.....	.8
Lift Operating Instructions.....	.10
Raising the Lift Platform.....	.10
Loading / Unloading the Lift Platform.....	.10
Lowering the Lift Platform.....	.11
Routine Maintenance.....	.11
Daily Inspection.....	.11
Monthly Inspection and Maintenance.....	.12
Changing the Hydraulic Fluid.....	.13
Cylinder Seal Replacement.....	.15
Trouble Shooting.....	.15
Electrical Schematics.....	.16
Hydraulic Schematic.....	.18
Replacement Parts.....	.18

Exploded Parts Drawing and Parts List

Vision Single Cylinder Lift Exploded View.....	.19
Vision Single Cylinder Lift Parts List.....	.21
Vision Dual Cylinder Lift Exploded View.....	.24
Vision Dual Cylinder Lift Parts List.....	.26
Vision Single Cylinder Hydraulic Exploded View.....	.29
Vision Single Cylinder Hydraulic Parts List.....	.30
Vision Dual Cylinder Hydraulic Exploded View.....	.31
Vision Dual Cylinder Hydraulic Parts List.....	.32
Vision Electrical Exploded View.....	.33
Vision Electrical Parts List.....	.34

List of Figures

Fig. 1 - Safety Warning Label Locations.....	.3
Fig. 2 - Lift Specification Drawing.....	.5
Fig. 3 - Recommended Floor Area.....	.6

Fig. 4 - Maintenance Catch Details	7
Fig. 5 - Installation Components	8
Fig. 6 - Handling the Vision Lift.	9
Fig. 7 - Anchor Bolt Detail	10
Fig. 8 - Hand Control Operation	10
Fig. 9 - Foot Control Operation	10
Fig. 10 - Hydraulic Fluid Drain Detail	13
Fig. 11 - Cylinder Hydraulic Fluid Removal Detail.	14
Fig. 12 - 115 Volt, Single Phase Electrical Schematic	16
Fig. 13 - 230 Volt, Single Phase Electrical Schematic	16
Fig. 14 - 230 Volt, Three Phase Electrical Schematic	17
Fig. 15 - 460 Volt, Three Phase Electrical Schematic	17
Fig. 16 - Hydraulic Schematic	18

List of Tables

Table 1 - Operating Temperature / Recommended Hydraulic Fluid	14
---	----

Date Placed in Service _____

Serial Number _____

Dealer _____

GETTING STARTED

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE Vision™ Scissor Lift Table. The safety of all persons installing, using or servicing the Vision™ lift table is of utmost importance to Bishamon. The Vision™ lift is capable of supporting heavy loads and is capable of causing SEVERE PERSONAL INJURY if used improperly or if certain safety precautions are not taken. When properly used and maintained, the Vision™ lift will provide many years of safe, trouble free service. If you have any questions about any of the instructions in this manual or about the use of this product, PLEASE contact your DEALER or Bishamon Industries Corporation.

Vision™ is a trademark of Bishamon Industries Corporation. Throughout this service manual the Vision™ scissor lift table may be referred to as the “lift table” or the “lift”.

INSPECTION

IMMEDIATELY upon receipt of the lift table remove all the packing and strapping material and visually inspect the unit for damage. Any damage to the unit MUST BE NOTED on the delivery receipt. After the preliminary inspection is conducted, the unit should be thoroughly inspected for any concealed damage that was not readily apparent during the preliminary inspection. Any concealed damage found that was not noted on the delivery receipt should be IMMEDIATELY reported in writing TO THE DELIVERING CARRIER.

SAFETY DEFINITIONS

Bishamon uses the following system to identify the degree of risk associated with hazards and unsafe practices:

- DANGER** - Immediate hazard which will result in SEVERE PERSONAL INJURY or DEATH.
- WARNING** - Hazard or unsafe practice which could result in SEVERE PERSONAL INJURY or DEATH and PROPERTY DAMAGE.
- CAUTION** - Hazard or unsafe practice which could result in MINOR PERSONAL INJURY and PROPERTY DAMAGE.

GENERAL DANGERS, WARNINGS, AND CAUTIONS

DANGER

READ THIS MANUAL COMPLETELY BEFORE USING. THOROUGHLY UNDERSTAND AND FOLLOW ALL SAFETY INSTRUCTIONS.

A falling lift table can cause SEVERE PERSONAL INJURY or DEATH. NEVER go under the platform until the load is removed and the scissor mechanism is secured in the raised position with the maintenance catches.

The maintenance catches have been designed for use only when the lift is UNLOADED. NEVER place any load on the platform with the maintenance catches engaged. SEVERE PERSONAL INJURY or DEATH and PROPERTY DAMAGE could result.

NEVER sit, stand, or ride on the platform. Moving components could cause loss of balance. SEVERE PERSONAL INJURY or DEATH could result.

The lift's electrical circuits use voltages which can cause SEVERE PERSONAL INJURY or DEATH. DO NOT work with the electrical components unless you are a QUALIFIED ELECTRICIAN.

The lift's electrical components can create sparks. DO NOT install the lift in an area where potentially explosive dusts, gases, or vapors may be present. Failure to comply may result in an explosion and cause SEVERE PERSONAL INJURY or DEATH.

WARNING

The Vision™ lift table is designed for use with stable uniformly distributed loads on a solid level floor. **DO NOT** concentrate the load at one point on the platform or pallet. **ALWAYS** uniformly distribute each layer of load over the supporting surface. **DO NOT** use the lift for any purpose other than its intended use.

DO NOT install the Vision™ lift table on an unlevel or soft surface. The lift base frame must be supported along its entire length and width. Failure to completely support the base frame could result in damage to the lift.

DO NOT use the lift table with an unstable, unbalanced, or loosely stacked load. Unbalanced loads may become unstable and fall. **SEVERE PERSONAL INJURY** and **PROPERTY DAMAGE** could result.

DO NOT overload the lift table. **ALWAYS** stay within the designated capacity ratings. **SEVERE PERSONAL INJURY** and **PROPERTY DAMAGE** could result.

SHEARING HAZARD. **ALWAYS** keep hands and feet clear of the scissor mechanism and all moving components. **DO NOT** put hands or fingers under the platform when in use. **SEVERE PERSONAL INJURY** could result.

CRUSHING HAZARD. **ALWAYS** keep hands and feet clear of all moving components. **DO NOT** put feet on the base frame when in use. **SEVERE PERSONAL INJURY** could result.

PINCH POINT HAZARD. **ALWAYS** keep feet, hands, and fingers away from the underside of the platform and all moving components. **SEVERE PERSONAL INJURY** could result.

DO NOT change the relief valve setting. The relief valve is installed to protect the operator and the lift table. Changing the relief valve setting may cause the lift to suddenly fall. **SEVERE PERSONAL INJURY** and **PROPERTY DAMAGE** could result.

NEVER leave the loaded lift table unattended unless the platform is in the fully lowered position.

ALL lift servicing must be performed by qualified personnel only. Unauthorized modifications to the lift table, its hydraulic power unit, or its control system may compromise the performance and safety of the system. **UNDER NO CIRCUMSTANCES** should you attempt any repair or service that is not covered in this manual.

The release of fluids under high pressure can cause **SEVERE PERSONAL INJURY**. Before servicing the lift, **ALWAYS** remove the entire load, engage the maintenance catches, and **RELEASE THE HYDRAULIC PRESSURE**.

ALWAYS ensure all safety warning labels are in place and legible. If not, remove the lift table from service and replace the required labels. Refer to Figure 1 for label descriptions and locations.

ALWAYS securely anchor the base frame to the floor to ensure maximum stability.

CAUTION

DO NOT continue to operate the pump if a squealing noise is heard coming from the pump. The pressure relief valve is operating. Continued use of the pump with the relief valve operating will cause permanent damage to the pump. **REDUCE** the load to prevent the relief valve from operating.

RESPONSIBILITIES OF OWNERS/USERS

It is the responsibility of the Owners/Users to:

1. Advise the DEALER or Bishamon Industries Corporation when deflection or creep is critical to the application.
2. Ensure the lift is inspected and maintained in proper working order in accordance with the operation/maintenance instructions provided in this manual.
3. Ensure any lift not in safe operating condition such as, but not limited to, excessive leakage, missing rollers, pins or fasteners, bent or cracked structural members, cut or frayed hydraulic lines, damaged or malfunctioning controls or safety devices, etc. shall be removed from service until it is repaired to Bishamon's standards.
4. Ensure all repairs are made by qualified personnel in conformance with the instructions provided by Bishamon Industries Corporation.
5. Ensure only trained and authorized personnel are permitted to operate the lift and that all operators understand the operating instructions, safety rules, and hazards associated with this lift.
6. Ensure the lift is used in accordance with the guidelines provided in this manual.
7. Ensure modifications or alterations of any lift are made only with the written permission of Bishamon Industries Corporation.

VISION SPECIFICATIONS

Lift	Capacity	Lowered Height	Raised Height	Travel	Platform Width	Platform Length	Weight
2500-36	2500LB 1134Kg	7 in. 178 mm	43 in. 1092 mm	36 in. 914 mm	24 in. to 48 in. 610 mm to 1219 mm	48 in. to 72 in. 1219mm to 1829mm	590LB
3500-36	3500LB 1588Kg	7 7/16 in. 189 mm	43 7/16 in. 1103 mm	36 in. 914 mm	24 in. to 48 in. 610 mm to 1219 mm	48 in. to 72 in. 1219mm to 1829mm	625LB
5000-36	5000LB 2268Kg	7 1/2 in. 191 mm	43 1/2 in. 1105 mm	36 in. 914 mm	24 in. to 48 in. 24 mm to 1219 mm	48 in. to 72 in. 1219mm to 1829mm	735LB
6500-36	6500LB 2948Kg	7 1/2 in. 191 mm	43 1/2 in. 1105 mm	36 in. 914 mm	24 in. to 48 in. 610 mm to 1219 mm	48 in. to 72 in. 1219mm to 1829mm	750LB
1500-48	1500LB 680Kg	7 3/8 in. 187 mm	55 3/8 in. 1407 mm	48 in. 1219 mm	30 in. to 48 in. 762 mm to 1219 mm	62 1/2 in. to 96 in. 1588mm to 2438mm	885 LB
2500-48	2500LB 1134Kg	7 3/8 in. 187 mm	55 3/8 in. 1407 mm	48 in. 1219 mm	30 in. to 48 in. 762 mm to 1219 mm	62 1/2 in. to 96 in. 1588mm to 2438mm	895 LB
3500-48	3500LB 1588Kg	7 1/2 in. 191 mm	55 1/2 in. 1410 mm	48 in. 1219 mm	30 in. to 48 in. 762 mm to 1219 mm	62 1/2 in. to 96 in. 1588 to 2438mm	1030 LB
5000-48	5000LB 2268Kg	7 1/2 in. 191mm	55 1/2 in. 1410 mm	48 in. 1219 mm	30 in. to 48 in. 762 mm to 1219 mm	62 1/2 in. to 96 in. 1588mm to 2438mm	1050 LB
6500-48	6500LB 2948Kg	7 3/4 in. 197 mm	55 3/4 in. 1416 mm	48 in. 1219 mm	30 in. to 48 in. 762 mm to 1219 mm	62 1/2 in. to 96 in. 1588mm to 2438mm	1060 LB
2500-24	2500LB 1134Kg	7 in. 178 mm	31 in. 787 mm	24 in. 610 mm	24 in. to 48 in. 610 mm to 1219 mm	41 in. to 60 in. 1041mm to 1524mm	445 LB
3500-24	3500LB 1588Kg	7 1/8 in. 181 mm	31 1/8 in. 791 mm	24 in. 610 mm	24 in. to 48 in. 610 mm to 1219 mm	41 in. to 60 in. 1041mm to 1524mm	455 LB
5000-24	5000LB 2268Kg	7 1/8 in. 181 mm	31 1/8 in. 791 mm	24 in. 610 mm	24 in. to 48 in. 610 mm to 1219 mm	41 in. to 60 in. 1041mm to 1524mm	640 LB
6500-24	6500LB 2948Kg	7 1/8 in. 181 mm	31 1/8 in. 791 mm	24 in. 610 mm	24 in. to 48 in. 610 mm to 1219 mm	41 in. to 60 in. 1041mm to 1524mm	655 LB

ADDITIONAL SPECIFICATIONS AND SPECIFICATION DRAWING

SPECIFICATIONS:	
Vision Series	
1. Sound Pressure Level	<70dB(a)
2. Operating Environment	Indoors
3. Lighting Requirement	Good General Lighting
4. Operating Temperature	(See Table 1)

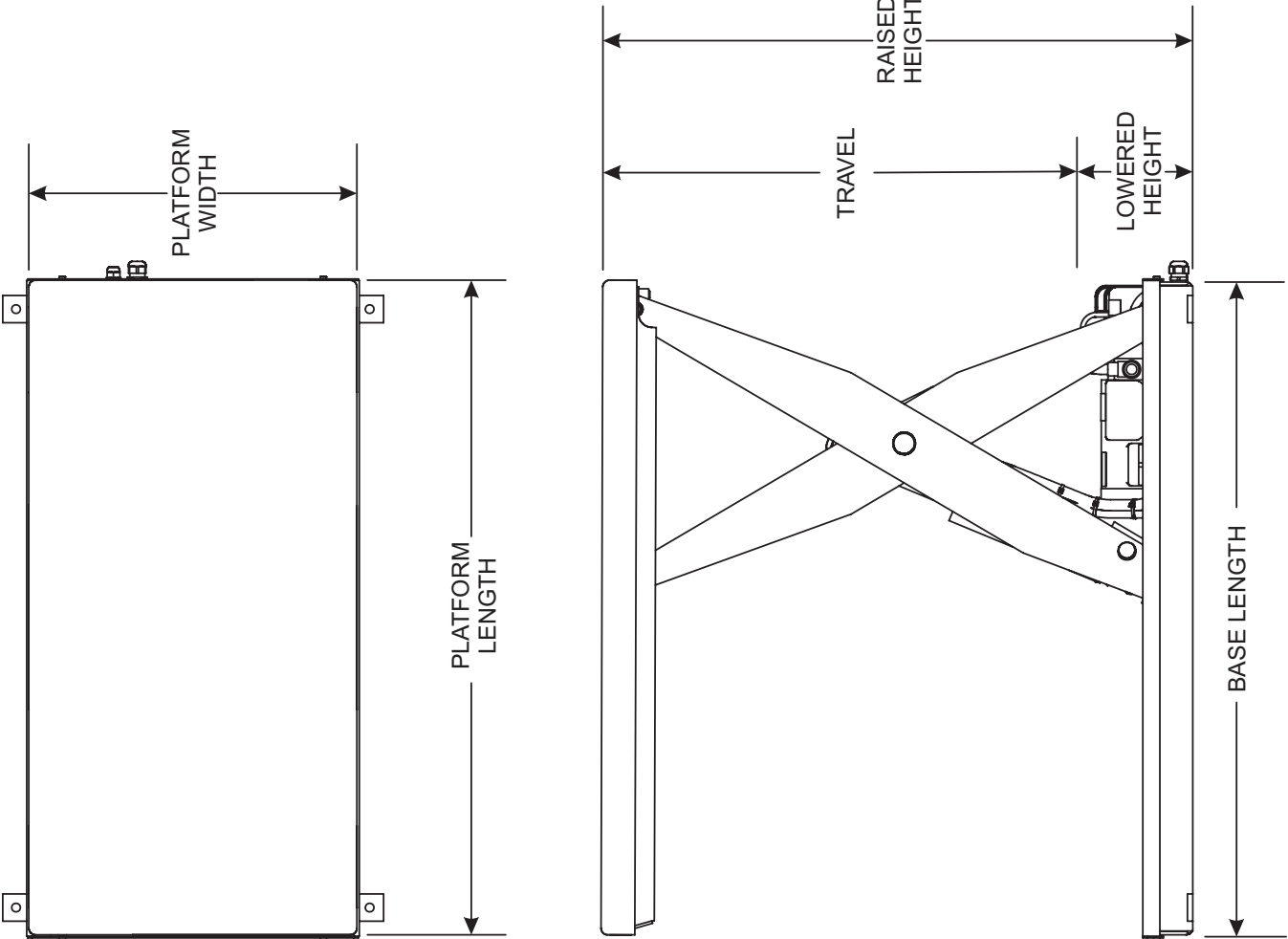


Figure 2 - Lift Specification Drawing

RECOMMENDED FLOOR AREA

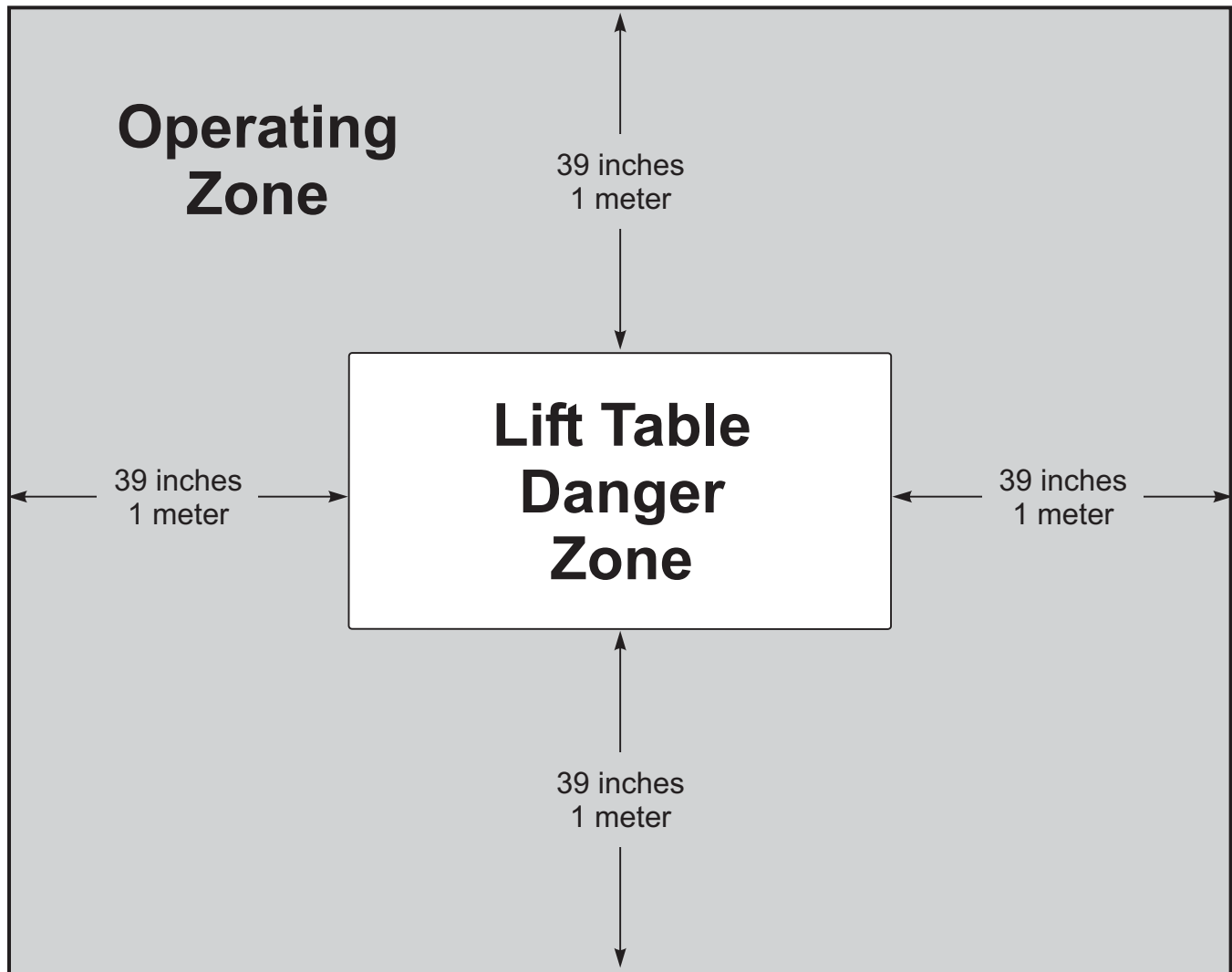


Figure 3 - Recommended Floor Area

The lift table's recommended floor area, shown in Figure 3, identifies the "Danger Zone" and the "Operating Zone". The Danger Zone is the area inside the base frame and under the platform structure. The recommended Operating Zone is a distance of 39 inches (1 meter) extending beyond the danger zone on all sides.



DANGER

A falling lift table can cause **SEVERE PERSONAL INJURY** or **DEATH**. **NEVER** go under the platform until the load is removed and the scissor mechanism is latched with the maintenance catches. The maintenance catches have been designed for use only when the lift is **UNLOADED**. **NEVER** place any load on the platform with the maintenance catches engaged. **SEVERE PERSONAL INJURY** or **DEATH** and **PROPERTY DAMAGE** could result.

FUNCTIONAL DESCRIPTION

Vision Series lift tables are versatile and heavy-duty. These electro-hydraulic scissor lift tables are designed and manufactured to increase productivity and reduce worker strain. By lifting and accurately positioning the load, Vision lifts eliminate unproductive lifting and stretching that ultimately leads to worker fatigue, injuries, and product damage. They are well suited for handling a wide variety of products including work in progress, palletized loads, containers, bins, tools, and dies.

Vision Lifts are available in 1500 lb, 2500 lb, 3500 lb, 5000 lb and 6500 lb capacities (1500 lb is only available in the 48 inch vertical travel model) and 24 inch, 36 inch and 48 inch vertical travels. The platform position is completely variable in height between the upper and lower travel limits. Lowered height is 7 inches to 7 ¾ inches depending on the model (see Vision Specifications).

Depressing the “RAISE” control actuates the hydraulic power unit and directs hydraulic fluid to the piston side of a single, single-acting cylinder. The cylinder rod extends and opens the scissor assembly, which in turn raises the platform. Lowering is achieved by depressing the “LOWER” control actuating a solenoid valve at the hydraulic power unit. Opening the valve allows hydraulic fluid to flow out of the cylinder and return to the reservoir. A pressure compensated flow control valve within the power unit controls the lowering speed.

MAINTENANCE CATCH OPERATING INSTRUCTIONS

To Engage The Maintenance Catches:

1. Remove the entire load from the platform and raise the lift table to its fully raised position.
2. Move to the side of the lift. As detailed in Figure 4, rotate the maintenance catch until the catch arm engages the outer scissor leg axle.
3. Move to the opposite side of the lift and repeat step 2 for the other catch arm. ALWAYS ensure BOTH catch arms are engaged.
4. Slowly lower the lift by depressing the lowering control button or pedal. The lift will lower slightly until the maintenance catches completely engage the axle. ALWAYS check the position of both maintenance catches before going under the platform.

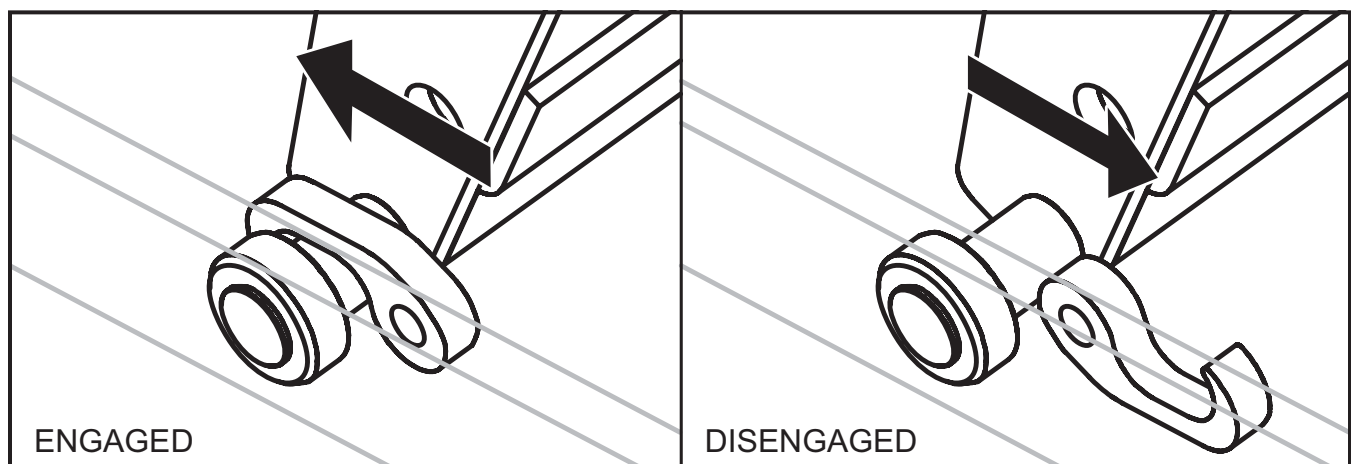


Figure 4 - Maintenance Catch Details

To Disengage The Maintenance Catches:

1. Raise the platform to its fully raised position.
2. Move to the side of the lift and rotate the maintenance catch to its disengaged position (See Figure 4).
3. Repeat step two (2) for opposite side of the lift.

INSTALLATION

The Vision™ lift table is shipped on a pallet and only requires minor assembly before it is ready for use. Before you begin, locate and identify the components detailed in Figure 5. These components will be referred to in the installation procedures. Make sure you understand the function of each component before proceeding.

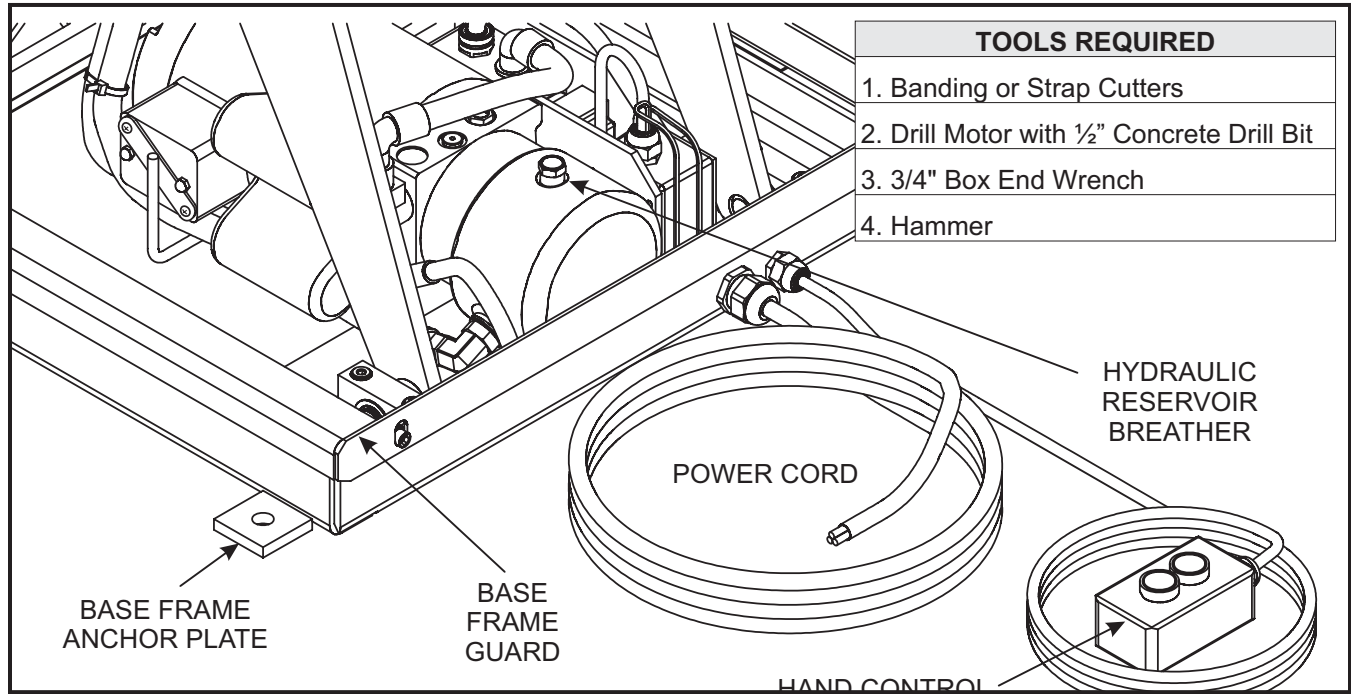


Figure 5 - Installation Components

Power Cord - All Vision™ lift tables are supplied with a 12 ft power cord of the proper size and rating for the hydraulic power unit. (NOTE: A power cord plug is not supplied with the lift due to the many different types of electrical receptacles and electrical installation options. A QUALIFIED ELECTRICIAN must install an electrical plug of the proper style and rating on the power cord or hard-wire the cord to an electrical panel. All electrical installation aspects must conform to the National Electrical Code or the proper governing agency for the area.)

Hydraulic Reservoir Breather - All Vision™ lift tables are supplied with hydraulic fluid in the reservoir. The breather is located on top of the reservoir and must be removed to check the fluid level or to add hydraulic fluid.

Base Frame Guard - All Vision™ lift tables are supplied with an electrical base frame guard. The guard, when depressed, prevents the lift from lowering.

Base Frame Anchor Plate - Four pre-drilled base frame anchor plates are provided to secure the lift to the floor or installation surface.

Hand Control - All Vision™ lift tables are supplied with a hand control (or optional foot switch) that is used to raise or lower the lift.



DANGER

The lift's electrical circuits use voltages which can cause **SEVERE PERSONAL INJURY** or **DEATH. DO NOT** work with the electrical components unless you are a **QUALIFIED ELECTRICIAN**.

Installation Instructions

1. Using a fork lift or similar equipment, move the palletized lift to the location it is to be installed. The installation area should be clean and have good general lighting.
2. Next, using the strap cutter, remove the bands securing the lift to the pallet. Remove all packing material and place it off to the side.
3. Locate the 12 ft power cord attached to the lift's base frame. A power plug is not supplied with the lift due to the many different types of electrical receptacles and electrical installation options. Next, have a **QUALIFIED ELECTRICIAN** install an electrical plug of the proper style and rating on the power cord or hard-wire cord to an electrical panel. Ensure both the power source and receptacle have the proper voltage and amperage rating for the lift's electric motor. Finally, insert the plug into the receptacle and/or turn on the supply voltage to the unit.
4. Locate the lift's hand control (See Figure 8) and depress the "RAISE" button to raise the lift to its maximum raised height. In the case of a foot control (See Figure 9), depress the "RAISE" pedal to raise the lift. Following the Maintenance Catch Operating Instructions on page 7, engage the maintenance catch on each side of the lift. **DO NOT** lower the lift to engage the catches at this time.

5. Using a forklift, position the forks under the platform structure, as detailed in Figure 6. Proper care should be exercised while using the fork lift as to not damage the lift. Lift the Vision™ lift off the pallet. Next, remove the pallet and place it off to the side. Position the lift in the desired location. Use care not to damage the lift's power cord or control cord.

NOTE: The Vision™ base frame **MUST** be secured to the floor for maximum stability. Contact your Dealer or Bishamon Industries Corporation if you have any questions regarding the proper installation of the lift. Complete steps 6 and 7 to secure the lift to the floor.

6. The lift table's base frame has four (4) 5/8 in. holes for lagging the unit securely to the floor. Using the four (4) holes as a template, drill a 1/2 in. diameter hole, 3 in. minimum depth at each location. The floor surface should be level and the drilled holes perpendicular to the floor. If required, shift the position of the lift with a forklift to allow room for drilling, then drill. When complete, reposition the lift.
7. As detailed in Figure 7, prepare the 1/2 in. diameter x 4 in. long anchor bolts (USE type SUP-R-STUD #26-12400 or equivalent) by assembling the washer and nut on the anchor bolt. The nut should be screwed onto the anchor bolt approximately 1/2 the nut height.

Drive the assembled anchor through the mounting holes into the concrete until the washer is flush with the top of the anchor plate. Expand the anchor shield by tightening the nut as required for tight fit, approximately three (3) to five (5) turns. Repeat step 7 for the remaining anchors. (NOTE: Make sure the underside of the base frame surface is fully supported, use shims or concrete grout if necessary.)

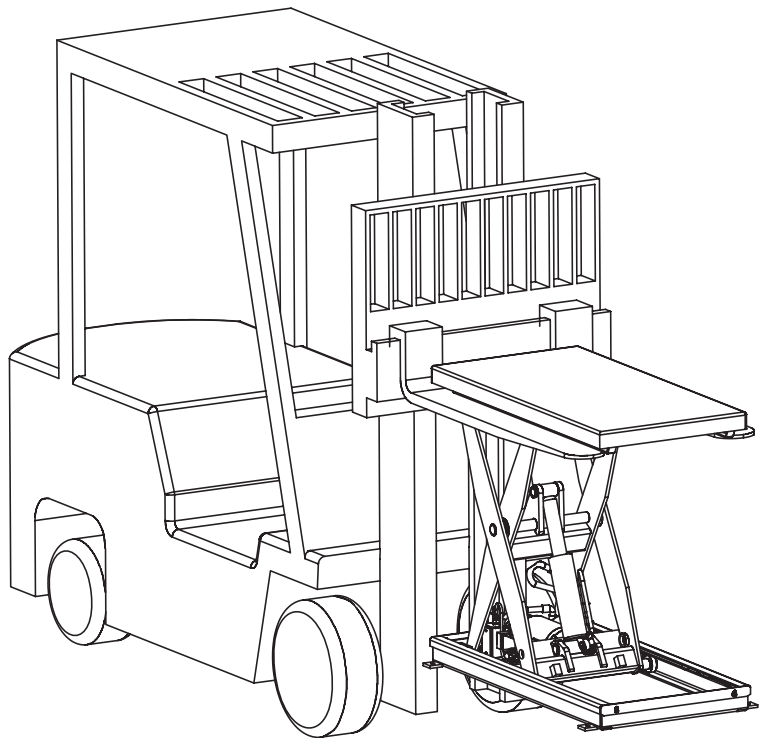


Figure 6 - Handling the Vision Lift

8. Check the base frame guard to ensure it floats freely on top of the base frame and that no obstruction exists.
9. Disengage the maintenance catches and run the lift up and down several times to remove any air that may have been trapped in the hydraulic system due to shipping.
10. Check the operation of the base frame guard. To do so, raise the lift to its maximum height. Slightly depress the base frame guard, then depress the lower push button or pedal. The lift should not lower until the guard is released.
11. The Vision™ lift is now ready for operation. Refer to the following section for complete operating instructions.

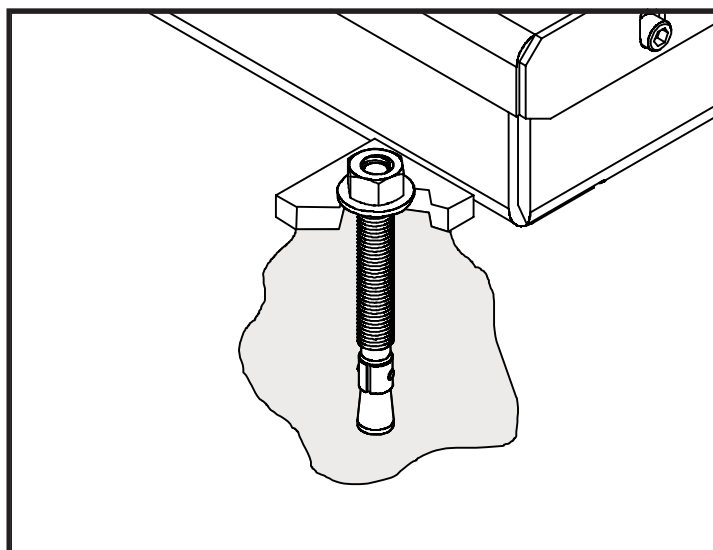


Figure 7 - Anchor Bolt Detail

LIFT OPERATING INSTRUCTIONS

Raising the Lift Platform

1. Before raising the platform, BE SURE that all others are well clear of the lift. If the platform is loaded, RECHECK the position and condition of the load.
2. As shown in Figures 8 and 9, depress the "Raise" button or pedal to raise the platform to a convenient position. CONTINUOUSLY WATCH the condition of the load as the platform is raised. If the load appears to be shifting STOP, lower the platform and adjust the load.

Loading / Unloading the Lift Platform

1. Check the load or component weight to ensure the total load does not exceed the capacity of the lift. Refer to the capacity decal on the side of the lift platform.
2. If required, raise or lower the platform to a convenient working height.
3. Uniformly distribute the load over the platform or supporting surface and ensure the load is tightly stacked.

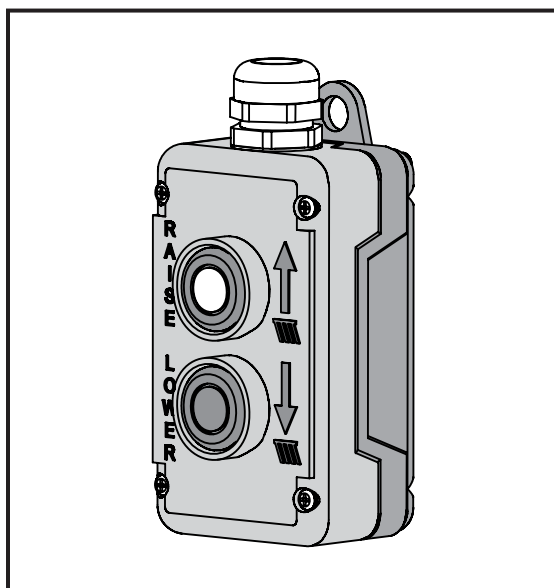


Figure 8 - Hand Control Operation

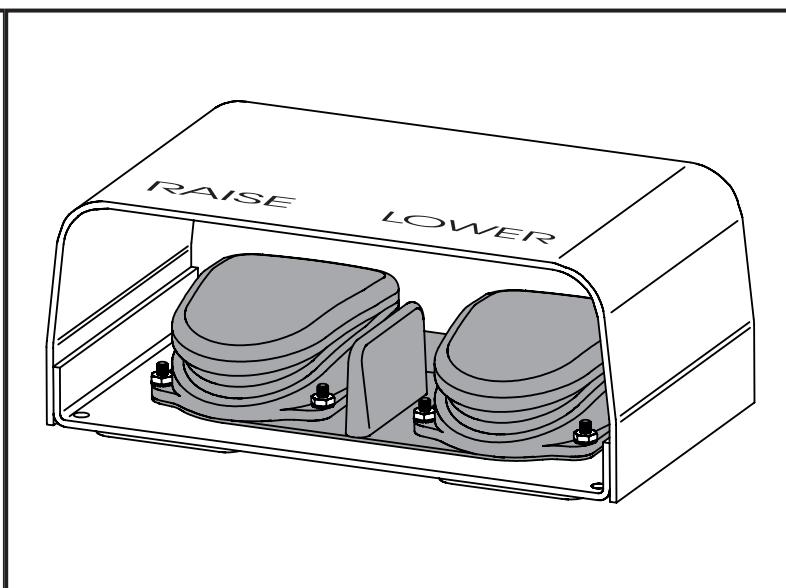


Figure 9 - Foot Control Operation



WARNING

DO NOT concentrate the load at one point on the pallet or platform. **ALWAYS** uniformly distribute each layer of load over the supporting surface.

DO NOT use the lift table with an unstable, unbalanced or loosely stacked load. Unbalanced loads may become unstable and fall. **SEVERE PERSONAL INJURY** and **PROPERTY DAMAGE** could result.

DO NOT overload the lift table. **ALWAYS** stay within the designated capacity ratings. **SEVERE PERSONAL INJURY** and **PROPERTY DAMAGE** could result.

Lowering the lift Platform

1. Before lowering the platform, BE SURE that you, as well as all others, are well clear of the lift. If the platform is loaded, RECHECK the position and condition of the load.
2. Depress the lowering button or pedal (see Figures 8 and 9) to lower the lift platform. CONTINUOUSLY WATCH the condition of the load as the platform is lowering. If the load appears to be shifting, STOP and adjust the load.

ROUTINE MAINTENANCE

The Vision™ lift table is designed to provide years of trouble free service and requires very little maintenance. However, a routine inspection and maintenance program will prevent costly replacement of parts and/or downtime. All service should be performed by a qualified service person who has an understanding of lift equipment and electrical and hydraulic diagrams. This person should be thoroughly familiar with the operation and use of this type of equipment.



DANGER

A falling lift table can cause **SEVERE PERSONAL INJURY** or **DEATH**. **NEVER** go under the platform until the load is removed and the scissor mechanism is secured in the raised position with the maintenance catches.

The maintenance catches have been designed for use only when the lift is **UNLOADED**. **NEVER** place any load on the platform with the maintenance catches engaged. **SEVERE PERSONAL INJURY** or **DEATH** and **PROPERTY DAMAGE** could result.

Daily Inspection

1. Before use, visually inspect the lift for worn, damaged, or broken components. (NOTE: A lift with a bellows option must have the bellows strapped up in order to perform the following visual inspections.) If any of these conditions exist, REMOVE the lift from service and contact a qualified service person to repair or replace these items at once.
2. Raise the platform and visually inspect the hydraulic components (i.e. pump, hoses, fittings, and cylinder) for fluid leakage. If fluid leakage exists, REMOVE the lift from service and contact a qualified service person.
3. Check the operation of the base frame guard by raising the unloaded lift to its maximum height. Slightly depress the guard and then depress the lowering button or pedal. The lift should NOT lower until the guard is released. If the lift lowers while the guard is depressed, REMOVE the lift from service and contact a qualified service person to have this problem repaired at once.
4. Check the condition of the warning labels. The warning labels are for the safety of the operator. If the labels are worn, missing, or unreadable, REPLACE them before placing the lift back in service.



WARNING

ALL lift servicing must be performed by qualified personnel only. Unauthorized modifications to this lift may compromise the performance and safety of the system. **UNDER NO CIRCUMSTANCES** should you attempt any repair or service that is not covered in the service manual or authorized by Bishamon Industries Corporation.

The release of hydraulic fluid under high pressure can cause **SEVERE PERSONAL INJURY**. Before servicing the lift, **ALWAYS** remove the load, engage the maintenance catches, and **RELEASE THE HYDRAULIC PRESSURE**.

ALWAYS ensure all safety warning labels are in place and legible. If not, remove the lift from service and replace the required labels.

Monthly Inspection and Maintenance

1. Inspect snap rings and roll pins at all pivot shaft and axle locations. If a snap ring or roll pin is not in place and/or secure, **REMOVE** the lift from service and contact a qualified service person to replace or repair these items at once.
2. Inspect the scissor rollers, cylinder pivot pins, cylinder bushings, scissor pivot pins, and scissor bushings for signs of wear. If worn, **REMOVE** the lift from service and contact a qualified service person to replace or repair these items at once. All pivot locations have lifetime lubricated bushings therefore they do not need grease or lubrication.
3. Inspect the removable scissor hinge blocks for tightness. Each block has two (2) socket head cap screws that secure the block to the base frame or the platform. Check the screws for tightness. Each screw should be tightened to 38 ft-lbs of torque. If loose, **REMOVE** the lift from service and contact a qualified service person to have these screws tightened to the proper torque.
4. Inspect the hydraulic power unit and cylinder for signs of leakage. The presence of a small amount of fluid around the cylinder rod is normal. However, fluid flowing from around the top of the cylinder head cap indicates worn seals. If this condition exists, **REMOVE** the lift from service and contact a qualified service person to have the cylinder seals replaced at once.
5. Inspect the flexible hydraulic lines for abrasion and wear. If these conditions exist, **REMOVE** the lift from service and contact a qualified service person to have these flexible hydraulic lines replaced at once.
6. Inspect the hydraulic line connections for tightness. If loose, **REMOVE** the lift from service and contact a qualified service person to tighten these connections as necessary.
7. Check the level and appearance of the hydraulic fluid. To do so, raise the unloaded platform and engage the maintenance catches (See Maintenance Catch Operating Instructions on page 7). Remove the breather on the top of the reservoir (Refer to Figure 5). Using a dip stick, check the fluid level from the top of the reservoir. The proper fluid level is between 2 ½ - 3 inches below the top of the reservoir breather port with the lift in the raised position. If required, add fluid to the reservoir. **CAUTION: DO NOT** overfill the reservoir or fluid will be forced out the breather when lift is collapsed. Check the condition of the fluid, it should appear light in color. The fluid should be changed if the color has darkened or if it feels gritty. Replace the reservoir breather.

Changing the Hydraulic Fluid (Every 12 Months)

Change the hydraulic fluid every 12 months of service or more often if conditions warrant. The frequency of fluid change will depend upon the general working conditions, severity of use, and the overall cleanliness and care given to the lift.

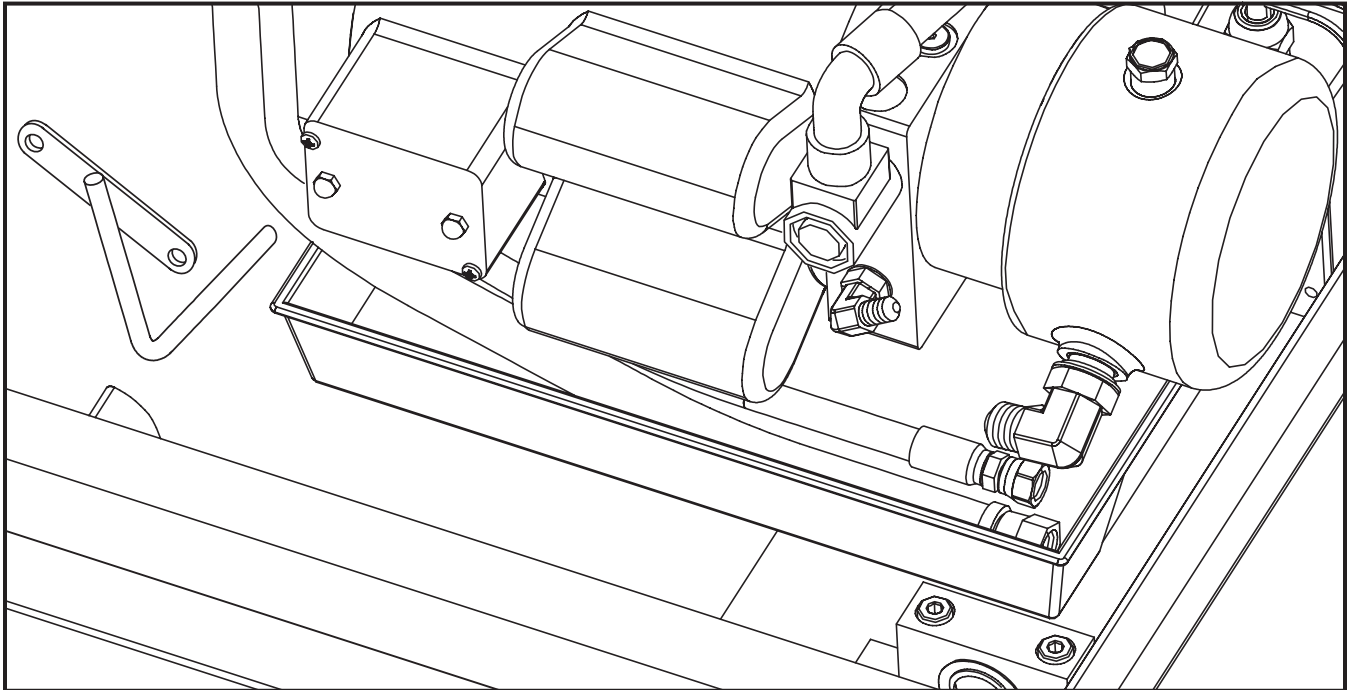


Figure 10 - Hydraulic Fluid Drain Detail

1. To change the hydraulic fluid, raise the unloaded platform to its maximum height and engage the maintenance catches (See Maintenance Catch Operating Instructions on page 7). **CAUTION:** Be sure to lower the lift onto the maintenance catches. Depress and hold the lowering button or pedal for several seconds to allow any residual hydraulic pressure to diminish.
2. Disconnect the lift from the power source. As detailed in Figure 10, remove the two (2) screws that secure the Hose Hold Down (VIS-B7001354), remove the Hose Hold Down, and re-install the screws to secure the motor junction box plate (Note: The three phase power unit does not use the Hose Hold Down). Remove the two (2) 3/8 –16 x 1inch long bolts (MEC-B2001379) that secure the power unit to the motor mount bracket. Raise the power unit approximately 2 ½ inches and insert a shallow pan (approximately 8 in. x 14 in. x 2 in. deep) under the power unit such that fluid drained from the pressure line fitting (HYD-B4001034) and return line fitting (HYD-B4001033) will drain into the pan. (NOTE: The pan should be strong enough to support the weight of the power unit.) Next, remove the cylinder return line from the reservoir by disconnecting the hose fitting (HYD-B4000191) from the return line fitting (HYD-B4001033) and remove the cylinder pressure line from the pump housing by disconnecting it from the pressure line fitting (HYD-B4001034). Allow the reservoir, pump, return line, and pressure line to drain into the pan. It may be necessary to tip the power unit slightly on its side to completely drain the reservoir.
3. Carefully remove the pan from under the power unit and place it along the left side the of the base (the side closest to the hydraulic lines). Lay the power unit in the base frame, but do not replace the motor attachment bolts at this time.
4. The old hydraulic fluid must now be removed from the cylinder(s). As detailed in Figure 11, place the end of the pressure line and the end of the reservoir return line in the pan.
5. For single cylinder models: remove the roll pin (MEC-B2000422) that retains the upper cylinder pin (VIS-B5002352). Remove the upper cylinder pin (VIS-B5002352) and tilt the cylinder to a vertical position. For dual cylinder models: remove the bolt (MEC-B2000029) and washers that retain the upper cylinder pin (VIS-B5002241 for 36 and 24 inch vertical travel models or VIS-B5002242 for the 48 inch vertical travel model) and tilt the cylinders to a vertical position. While vertical, push the cylinder(s) rod down completely to

purge the fluid from the piston side. Next, pull the cylinder(s) rod up completely to purge any remaining fluid from the rod side. Finally, push the cylinder(s) rod down completely.

6. Clean the ends of both hydraulic lines and reconnect them to the power unit. Ensure both hose connections are tight. Reposition the power unit in the base frame and replace the two (2) bolts that secure the power unit to the lift's base frame. Tighten securely. Replace the Hose Hold Down. (NOTE: The old hydraulic fluid is considered hazardous waste and should be handled and disposed of properly. Carefully remove the pan and properly dispose of the remaining hydraulic fluid.)
7. Completely fill (approximately 1 inch below the filler port) the reservoir with the correct hydraulic fluid. Refer to Table 1 for the proper fluid selection.
8. Clean all spilled fluid and thoroughly inspect the lift and all hydraulic components. Reconnect the power cord to the power supply and jog the motor by pressing the "RAISE" button or pedal to prime the pump and begin to extend the hydraulic cylinder. Slowly extend the cylinder such that when the cylinder rod is fully extended, the fluid level in the reservoir is between 2 ½ - 3 inches from the top of the reservoir breather port and the rod end cross tube lines up with the holes in the cylinder mounting clevis. Replace the upper cylinder pin.
9. Raise the lift to its maximum height and disengage the maintenance catches. Completely raise and lower the lift eight (8) to ten (10) times to fill the rod end reservoir and remove any trapped air from the hydraulic system.
10. Completely raise the lift and engage the maintenance catches. Recheck the fluid level as detailed in the "Monthly Inspection and Maintenance" section. The lift is now ready for use.

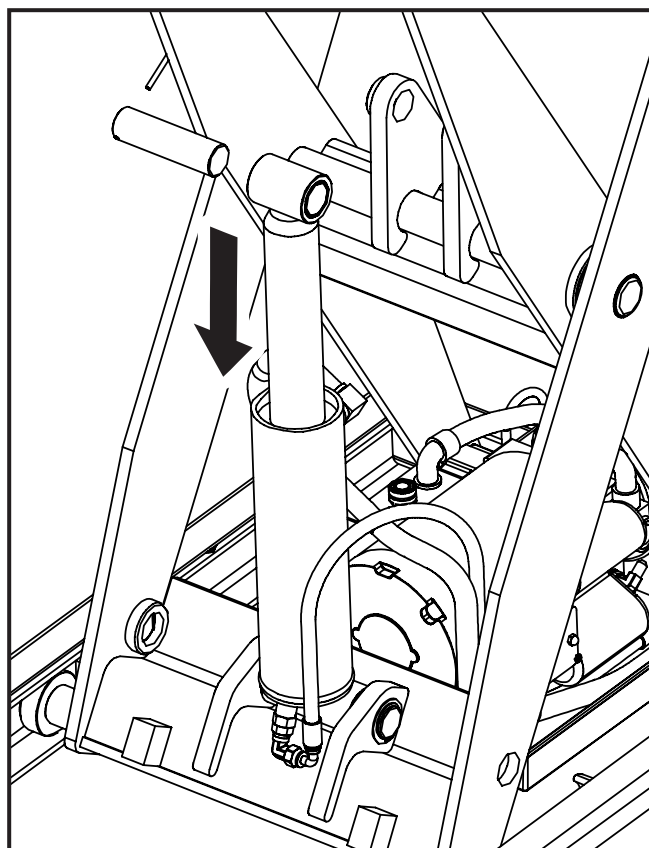


Figure 11 - Cylinder Hydraulic Fluid Removal Detail

Fluid Type	Manufacturer	Fluid Temperature Range °F
DTE LIGHT	MOBILE	+40 - +150
DTE 13	MOBILE	0 - +160
SAE 10	PENNZOIL, MOBILE, ETC	0 - +150
SAE10W30	PENNZOIL, MOBILE, ETC	+20 - +170
SAE 20	PENNZOIL, MOBILE, ETC	+30 - +170
MIL 5606 (Aircraft Hydraulic Fluid)	PENNZOIL, MOBILE, ETC	-30 - +75

Table 1 - Operating Temperature / Recommended Hydraulic Fluid

Cylinder Seal Replacement

In the event the pump or cylinder seals are leaking, detailed instructions and replacement part kits are available. Contact the DEALER or Bishamon Industries Corporation to obtain service kits and instructions for these items.

Trouble Shooting

Problem	Cause	Solution
Platform will not raise. (Pump will not run)	Power disconnected. Open wire in electric circuit.	Verify that power source is applied. Check for faulty wiring.
Platform will not raise. (Pump will run)	No hydraulic fluid in reservoir. Load too heavy (relief valve operating). Lowering solenoid valve stuck open.	Fill reservoir. Reduce load. Clean or replace valve. Check for faulty wiring.
Platform will not remain elevated.	Lowering solenoid valve stuck open.	Clean or replace valve. Check for faulty wiring.
Platform will not lower.	Toe guard switch is activated. Platform or scissor obstruction. Lowering solenoid valve not opening. Obstruction in flow limiting valve. Relay malfunction.	Remove obstruction. Remove obstruction or reposition lift. Check for faulty wiring. Clean / Flush flow limiting valves. Replace relay.
Platform lowers too slowly.	Obstruction in solenoid valve. Obstruction in flow limiting valve.	Clean / Flush solenoid valve. Clean / Flush flow limiting valves.
Pump motor continuously runs.	Motor contactor frozen closed. Wiring malfunction.	Replace motor contactor. Check for faulty wiring.
Cylinder leaking.	Cylinder seals worn or damaged. Valves, fittings or hoses loose.	Repack cylinder. Tighten valves, fittings or hoses.
Pump leaking	Reservoir over-filled with fluid. Hose or fitting loose. Pump piston seal worn or damaged.	Drain excess fluid. Tighten hose or fitting. Repack pump.

